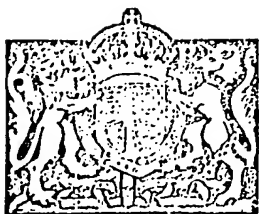


PATENT SPECIFICATION



Convention Date (Germany): Jan. 4, 1930.

367,387

Application Date (in United Kingdom): Nov. 13, 1930. No. 34,144/30.

Complete Accepted: Feb. 15, 1932.

COMPLETE SPECIFICATION.

18. MAR 1932

A Method of Lining and Coating Metal Pipes, Receptacles or the like with a Bituminous, Tarry or other Rust-preventing Composition.

I, WILHELM KUNST, of 24, Düppelstrasse, Barmen, Germany, a Citizen of the German State, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

It is known to line pipes with bitumen or asphalt which is effected by introducing the composition while hot into the pipe and spreading it by rapidly rotating the pipe. When this method is employed, in order to obtain the necessary adhesion of the composition to the walls of the pipe and to secure uniformity of thickness of the composition, the pipe must be heated before being rotated, the heating being advantageously effected by a gas fire as previously proposed.

It has been found that it is very difficult to heat the pipe uniformly. This uniform heating is, however, very important for securing the adhesion of the composition and to ensure its being of uniform thickness. If the heating is not uniform stresses are set up in the material when it cools down, which may result in partial loosening or falling off of the composition.

If the pipe is heated to a temperature above that for causing the combustion of the inner protective lining there will be no insulation at this point. Furthermore the irregularity in heating involves irregularity in thickness of the layer of composition.

It has already been proposed to spread an adhesive over a pipe before the insulating composition is applied. Such a spreading of adhesive over the pipe, however, has been demonstrated by years of experience to be altogether inefficient. The layer of composition is not applied at all uniformly, in fact there is no assurance whatever that the entire surface of the pipe is covered by the composition, particularly when the pipes are 16 metres and more in length, in which lengths they are now usually employed. If, moreover, the pipe has a fairly small bore, such as 300 mm. or less, spreading is alto-

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gether out of the question.

It has also been proposed to line and coat metal pipes with asphalt powder by first forming a film of bitumen or a bituminous composition on the surface of the pipe by dipping the pipe and then applying upon the film a coating of hot asphalt powder by centrifugal action.

In order to obtain effective insulation and absolute uniformity of adhesion combined with firm attachment of the inner protecting layer to the wall of the pipe or the like and also a uniform thickness of the said layer, when lining pipes or the like with hot fluid bituminous composition, the pipe or the like, without previous heating, is immersed according to the invention, into a hot bath of an adhesive whereby the adhesive is caused to adhere closely and uniformly to the inner and outer surfaces of the pipe or the like owing on the one hand to the high temperature of the bath and on the other hand to its fluidity. The bituminous protecting lining is formed immediately afterwards by the application of the composition in a hot fluid state to the whole of the surface to be protected, by the action of centrifugal force.

It is preferred to use as the adhesive pit coal tar pitch or petroleum bitumen produced by the distillation respectively of pit coal tar or petroleum. Natural bitumen, may, however, be employed. Similarly, the rust preventing composition may advantageously consist of tar produced by the dry distillation of pit coal or of bitumen of various compositions.

The adhesive advantageously contains suitable additional substances, such as powdered zinc, powdered slate, or the like so as to roughen the surface of the adhesive. The purpose of this roughening is to secure more effective adhesion of the actual protective coating to be applied to the smooth wall of the pipe than heretofore. By such addition, also, the adhesive may be rendered more elastic.

The application of the adhesive is effected in such a way that even if pitch 100

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of varying quality is used no defects occur in the general structure of the protective layer.

It will be understood that centrifuging may be effected either by rapidly rotating the pipe to be insulated or by spraying on the bitumen composition under pressure by means of a suitable revolving spraying device.

10 As previously stated, the immersion of the pipe or the like in the liquid adhesive results also in the coating of the outer surface of the pipe. The necessary external insulation can therefore readily be prepared by the application of jute or 15 the like fabrics or felt, pasteboard or similar substances, saturated with bitumen, to the pipe while it is rotating to cool the lining.

20 Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

25 1. A method of lining and coating

metal pipes, tanks or the like with bituminous, tarry or other rust preventing composition, characterised in that the pipe is first immersed completely and while 30 cold into a hot liquid adhesive, such as a pitch composition, and then lined with the bituminous composition in a hot and fluid state either by centrifugal force exerted in the rapid rotation of the pipe or the like or by spraying. 35

2. A method according to claim 1, characterised in that while the lining of the pipe, tank or the like is cooling and while the pipe or the like is rotated an 40 external insulating layer of bitumen-saturated insulating material such as jute, wool felt or the like is applied thereto.

3. A method of lining and coating metal pipes, tanks or the like substantially 45 as hereinbefore described.

Dated this 13th day of November, 1930.
EDWARD EVANS & Co.,
27, Chancery Lane, London, W.C. 2,
Agents for the Applicant.

Redhill: Printed for His Majesty's Stationery Office, by Love & Malcomson, Ltd.—1932.

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